

**RECORD OF DECISION  
FOR  
FOURMILE HILL GEOTHERMAL PROJECT  
ON  
FEDERAL LEASES CA21924 AND CA21926**

**DEPARTMENT OF INTERIOR  
BUREAU OF LAND MANAGEMENT  
ALTURAS FIELD OFFICE**

**DEPARTMENT OF AGRICULTURE  
U.S. FOREST SERVICE  
KLAMATH NATIONAL FOREST  
MODOC NATIONAL FOREST**

**SISKIYOU AND MODOC COUNTIES  
CALIFORNIA**

## **I. INTRODUCTION**

In 1996, Calpine Corporation submitted a Plan of Operation and subsequent Special Use Application for development of geothermal resources on federal leases CA21924 and CA21926. These leases are located on federal lands in which the surface resources are managed by the Klamath and Modoc National Forests. During the past four years, Bureau of Land Management and the U.S. Forest Service, in partnership with Bonneville Power Administration (BPA) and Siskiyou County Air Pollution Control District, analyzed the impacts of the proposal. The impacts are documented in the *Fourmile Hill Geothermal Development Project Environmental Impact Statement/Environmental Impact Report*. This is the Record of Decision on that proposal.

## **II. DECISION**

After careful consideration of all perspectives and factors, balancing the need for renewable energy and the need to protect visual and cultural values associated with the unique and significant historic properties in the Medicine Lake Highlands, we have concluded that the interests of the public would be best served by selecting Alternative 6, as amended by this Record of Decision. Therefore, it is our decision to approve Calpine Corporation's Plan of Operation for the Fourmile Hill Geothermal Project (Project) as amended by this Record of Decision and described in Alternative 6, as amended,

of the Final Environmental Impact Statement/Environmental Impact Report (FEIS/FEIR). As part of this decision, Alternative 6 is further amended by:

- requiring establishment of a public oversight group to review monitoring data and Calpine Corporation's compliance with various impact thresholds established in the FEIS/FEIR.
- placing a moratorium on further geothermal development in the Glass Mountain Known Geothermal Resource Area (KGRA) for a minimum of five years until an analysis of actual impacts of geothermal development can be completed by the authorizing agencies.

This Record of Decision (ROD) is a joint BLM and Forest Service document. However, each agency is making decisions that pertain to separate activities identified in the Plan of Operation. For the BLM it pertains to:

1. construction, operation, and maintenance of the well fields;
2. construction, operation and maintenance of the pipelines;
3. construction, operation and maintenance of the power plant; and
4. construction, operation and maintenance of the re-injection system.

These activities will be authorized by the issuance of a Geothermal Drilling Permit and Sundry Notice, a Facility Construction Permit, a Commercial Use Permit, and a Geothermal Site License.

In regards to the Forest Service:

1. construction, operation and maintenance of a 230-kV overhead transmission line;
2. issuance of a road easement for access to the power plant;
3. permitting temporary water well use and water line placement and maintenance; and
4. issuance of a Forest Order that prohibits firearm discharge within the vicinity of the Fourmile Hill power plant.

These activities, excluding the Forest Order, will be authorized by issuance of a temporary special use permit. After construction of the power plant and transmission line, a right-of-way easement will be issued to Calpine Corporation.

In authorizing these activities, the Modoc and Klamath National Forests are approving a non-significant plan amendment to their respective Land and Resource Management Plans (Forest Plans) designating the approved transmission line as a Designated Utility Corridor. In addition, the Forest Plan for the Klamath National Forest is amended by adding the following standards and guidelines related to Utility Corridors which are already included in the Modoc Forest Plan:

19-13 Cooperate with utilities' representatives to develop strategies to minimize the potential for single or multiple line power outages that could result from destructive events such as wildfires.

19-14 Coordinate with Federal and private utility managers when managing Forest activities near utility corridors to ensure that Forest activities do not conflict with the intended permitted use and management of the utility corridor.

The Klamath National Forest is amending its Land and Resource Management Plan (Forest Plan) to change the wording for Standard and Guideline 24-25. The amendment to the Standard and Guideline 24-25 is to be consistent with Public Law 95-341 and corrects an unenforceable action, the concept that the Forest Service can require the American Indian Community to use an area. The amendment is consistent with the American Religious Freedom Act and the Klamath Forest Plan's intent to be consistent with all laws as stated on page 4-1 of the Klamath Plan.

The level of protection under Public Law 95-341 will not change with the following wording change:

24-25 Protect traditional American Indian cultural and religious uses and practices consistent with Public Law 95-341 (American Indian Religious Freedom Act of 1978).

### **III. ALTERNATIVES CONSIDERED**

In response to public issues, the FEIS/FEIR documented the effects of five alternative transmission line routes and the No-Action Alternative. Figure 2.3-1 in the FEIS/FEIR displays the general location of alternatives, as well as the Proposed Action. The study area for each alternative is a 1000 foot wide corridor. The alternatives respond to avoiding the visual and noise impacts within the Medicine Lake Caldera, entry into the Mt. Hoffman, Dobie, and Lava Released Roadless areas, and visual impacts to the community of Tionesta.

No alternatives to the well and injection pads, pipelines and power plant were analyzed. The Proposed Action minimizes the resource impacts to the extent technically feasible and practical.

The alternatives differ in route of the transmission line and subsequent location of the substation. All other actions identified in the Proposed Action (Alternative 1) are common to all alternatives, except the No-Action alternative. The following is a brief description of each alternative and rationale for not selecting the respective Alternative. The rationale for not selecting a particular Alternative is explained in more detail in Section **IV. Rationale for Decision**

#### Alternative 1 (Proposed Action)

##### **Power Plant**

The Fourmile Hill project is located in Siskiyou County on federal lands that are managed by the Klamath National Forest. The subject federal geothermal leases are within the Glass Mountain Known Geothermal Resource Area (KGRA), which is managed by the Alturas Field Office of the Bureau of Land Management. The Project is to construct and operate a

49.9-megawatt geothermal power plant approximately three miles northwest of Medicine Lake on the northwest flank of the Medicine Lake Highlands. The operation will also include the construction of five production well pads, three injection well pads and above ground pipelines. The proposed action is defined in three phases: construction, operation and decommissioning. The construction phase will occur over a three-year period. This phase would begin with the well field testing/development and end with the construction of the power plant facility. The power plant is anticipated to operate for 45 years and would generate up to 49.9 megawatts of electricity. At the end of the 45-year operation phase, the decommissioning phase would commence.

### Transmission Line

Calpine Corporation proposes to construct and operate a 230-kV overhead transmission line that would extend from the Fourmile Hill geothermal power plant to the BPA Malin-Warner 230-kV transmission line. The transmission line would be a wooden pole H-frame construction and extend for approximately 25 miles on National Forest System lands. The line would extend in a southeast direction from the power plant location and along the northern side of Medicine Lake Caldera. It would then extend through the Mount Hoffman Released Roadless Area until just south of Indian Butte. From there, the route extends in an easterly direction going just north of the community of Tionesta and connecting with the Malin-Warner Line at a proposed substation located beneath the existing BPA line.

### Ancillary Uses

Calpine also proposes to place an above ground temporary water line from the existing Forest Service groundwater well in the Arnica Sink area to the Project site. The Proposed Action includes the need for year-round access to the Project site. The access will be for construction and operation of the geothermal facilities, and will require snow removal.

This alternative was not selected because it would adversely impact:

- Vegetation (including special status plants and old growth timber stands);
- Visual quality of travel corridors around Medicine Lake and the community of Tionesta;
- Traditional cultural values and uses in the Medicine Lake Caldera area;
- Mt. Hoffman Released Roadless area;
- Snowmobile activities in the Medicine Lake Caldera;
- Recreation values within Medicine Lake Caldera; and
- Noise levels during transmission line construction in the Medicine Lake Caldera.

## Alternative 2

This alternative is the same as the Proposed Action, except the transmission line veers north at the intersection with the COTP 500-kV transmission line. The transmission line extends northward within the designated utility corridor and then eastward toward BPA transmission line. It connects to the BPA at a new proposed substation. This alternative was analyzed to respond to the public issue associated with visual impacts of the transmission line to the residents of the community of Tionesta.

This alternative was not selected because it resulted in the same adverse impacts as the Proposed Action except for the visual impacts to the community of Tionesta. In addition, there will be impacts as a result of entry into Lava and Dobie Flat Released Roadless areas.

## Alternative 3

This alternative was developed in response to the adverse impacts to Mt. Hoffman Released Roadless area. This alternative avoids the area by locating the transmission line outside the Mt. Hoffman Released Roadless area. The transmission line, as described in this Alternative, continues eastward in the Medicine Lake Caldera and extends south of Lyons Peak until it intersects the COTP 500-kV transmission line. At that point it would run parallel to the 500-kV transmission line until it intersects the Proposed Action location and would be identical to that route.

This alternative was not selected because it resulted in the same adverse effects as the Proposed Action, except for the Mt. Hoffman Released Roadless area. In addition, there would be adverse impacts to:

- The Medicine Lake Managed Late Successional Area, and
- Additional ground disturbing activities as a result of the increased length of the transmission line (approximately 2 miles more than the Proposed Action).

## Alternative 4

This alternative was analyzed to respond to both the issue of entry into a released roadless area and the visual impacts to the community of Tionesta. The location of the transmission line is similar to Alternative 3, except that it avoids the visual impacts to the community of Tionesta by using the route described in Alternative 2.

This alternative was not selected because, as in Alternative 3, the alternative would result in the same adverse impacts as the Proposed Action, except for the visual impacts to the community of Tionesta and the impacts associated with entry into the Mt. Hoffman Released Roadless area. In addition, there would be adverse impacts to:

- The Medicine Lake Managed Late Successional Area,

- Additional ground disturbing activities as a result of the increased length of the transmission line (approximately 3 miles more than the Proposed Action), and
- Entry into the Dobie Flat and Lava Released Roadless areas.

#### Alternative 5

This alternative was analyzed in response to the impacts associated with the transmission line placement within the Medicine Lake Caldera. The transmission line route differs from the Proposed Action route in that it heads north from the proposed power plant. It then turns east between Lookout Butte and Fourmile Hill. The route connects with the Proposed Action route location just north of Glass Mountain and continues along the route of the Proposed Action. This route was not selected because it would have adverse visual impacts on the community of Tionesta.

#### Alternative 6, as amended (Selected Alternative)

Alternative 6 as described in the FEIS/FEIR is similar to Alternative 5 except that it avoids the visual impacts to the community of Tionesta by using the Alternative 2 route. However, it still results in entry into the Lava and Dobie Flat Released Roadless areas.

In reviewing the location of Alternatives 5 and 6, it became apparent that there exists an alternative that would avoid the impacts associated with entry into the inventoried released roadless areas (Alternative 6) and avoid the visual impacts to the community of Tionesta (Alternative 5) and not result in new or additional environmental impacts. The alternative, called a modified Alternative 6, would be similar to Alternative 6. The route of the transmission line from the power plant would be similar to Alternative 5 until it intersects the Western Area Power Administration (WAPA) 500-kV overhead transmission line. At that point, the line route would go north within the designated utility corridor and on the eastside of the WAPA line until it intersects Alternative 6 route location, where it would be identical to Alternative 6.

This route is very similar in environmental effects to both Alternatives 5 and 6. It crosses the same type of wildlife habitat, is similar in length and has no new significant environmental impacts. For Geology and Soils, Hydrology, Geothermal Resources, Traditional Cultural Resources, Vegetation, Wildlife, Visual Resources, Plans and Policies, Land Uses and Recreation, Transportation, Air Quality, Human Safety and Socioeconomic, the environmental impacts would be similar to those described for Alternative 6 in the FEIS/FEIR. For Noise, the impact would be greater than those described for Alternative 6, but less than those for Alternative 5. The FEIS/FEIR stated that the construction activities east of the WAPA corridor would be major sources of noise effects to the sensitive receptors in the Tionesta area. Since the modified route would proceed northeast along the WAPA corridor, the construction related noise effects in the Tionesta area will be reduced from those described for Alternative 5. For Cumulative Effects, the impacts will be similar to those described in Alternative 6 in the FEIS/FEIR.

### Alternative 7 (No Action)

The No Action Alternative would not approve the project. As stated in the FEIS/FEIR, the No Action Alternative is the environmentally preferred alternative because it would create no additional environmental impacts. In reviewing the cultural and social impacts associated with the transmission line and other proposed activities, we find no impacts that warrant the denying of the Project.

### **III. ALTERNATIVES NOT CONSIDERED IN DETAIL**

Alternatives that were Considered but Eliminated from Detailed Study include:

- Alternative transmission line routes
- Buried transmission line
- Smaller transmission line capacity
- Smaller power plant and well field locations
- Alternative power plant and well field facilities
- Buried well field pipelines
- Alternative geothermal power technology

The FEIS/FEIR contains a detailed discussion regarding the rationale for dismissing these alternatives from detailed analysis. Following is a brief summary of that discussion:

Alternative Transmission Line Routes: The primary objective of the transmission line is to connect the power generation capability of the geothermal power plant to the Bonneville Power Administration (BPA) transmission line system. The closest BPA transmission line is located east of the project area at the Malin-Warner 230-kV transmission line. The routes that were analyzed in detail in the FESI/FEIR were those that minimized the length of the transmission line, which would reduce the overall impacts associated with the construction, operation and maintenance of the line.

Routes in a westward and southerly direction from the power plant were not considered in detail because the routes would require significantly more surface disturbance, as a result of increased overall length of the line, would impact more environmentally sensitive lands such as farmland and wildlife refuge lands, and would be more costly and not reduce the overall impacts associated with the transmission line.

Buried Transmission Line. Though technically feasible, buried transmission lines for higher voltages, such as those proposed for the Fourmile Hill Geothermal Project, are extremely costly. The cost can be as much as 8 to 12 times more than an overhead transmission line. Thus, in order to consider an alternative for a buried transmission line, there needs to be

resource impacts that would warrant the need to require this additional cost. Generally, routing alternatives or applying mitigation measures is the more effective and efficient alternative to minimize most resource impacts. Since the FEIS/FEIR considered alternatives in detail that reduced the visual impacts of the transmission line by either routing location and/or mitigation measures, there was no need to consider an alternative for burying the transmission line.

Smaller Line Capacity: Technically a 115-kV line could adequately serve the need of the Fourmile Hill Power Plant. Anything smaller than 115-kV would substantially reduce the power generation efficiency and thus potentially require additional power generation at the power plant. This would directly relate to the need for additional well drilling and thus result in additional environmental impacts.

In regards to 115-kV versus a 230-kV transmission line, the tower height for both lines is approximately equal and thus the right-of-way clearing would be approximately the same. Therefore, the environmental impacts would not be substantially different. A 230-kV line is more efficient and would be more economical and not result in significant additional resource impacts.

Smaller Power Plant and Well Field Locations: A reduction in capacity of the proposed project would not significantly minimize or avoid any environmental effects. The sizing of the proposed well pads is the minimum needed to contain well drilling and operation equipment and facilities, and the same equipment and facilities would still need to be present regardless of the project's production capacity. The same situation exists with the proposed power plant. The proposed size of the plant site is the minimum needed to contain necessary equipment and facilities, and the same equipment and facilities would still be present regardless of the project's production capacity. Therefore there is not an environmental advantage in implementing an alternative that has a smaller power plant and well field capacity than the Proposed Action.

Alternative Power Plant and Well Field Locations: The location of the power plant and well field is based upon the size and capacity of the geothermal reservoir. Based upon the known information of the geothermal reservoir underneath the leases, the Proposed Action is the most efficient location for developing the geothermal resource. In addition, there were no clear environmental advantages to minor adjustments of the power plant or well field location.

Buried Well Field Pipelines: This alternative was not considered in detail because of the potential effects to the subsurface resources by burying the pipelines, the difficulty in maintaining the buried lines and the increased cost for burying the lines. However, burying pipelines is proposed for short segments as a mitigation measure.

Alternative Geothermal Power Technology: Several different technologies for geothermal development were considered, including Binary Plant, Single-Flash Plant and Pure Steam, in the FEIS. These alternatives were not considered in detail because the technology is not

feasible or appropriate for development of the geothermal resource within the lease area or there is no clear environmental advantage to utilization of the technology.

#### **IV. RATIONALE FOR DECISION**

Concurrent with this decision, BLM and Forest Service are issuing a Record of Decision to deny the Telephone Flat Plan of Operation. Each project is different in environmental setting, and the relative impacts within the respective environmental setting. The location of the Telephone Flat project is within the Medicine Lake Caldera area of the Medicine Lake Highlands. The Fourmile Hill Project is located outside the Caldera, specifically on the northwest flank of the Medicine Lake Highlands. The difference between these two environmental settings within the Medicine Lake Highlands is described in the Telephone Flat Record of Decision.

##### **Rationale**

The rationale for the BLM and Forest Service decision for the Fourmile Hill project is based upon the combination of the following factors:

- 1) For the BLM, the Plan of Operation is consistent with the terms, conditions and stipulations contained in Federal Leases CA21924 and CA21926.
- 2) For both the BLM and Forest Service, the Plan of Operation does not result in long-term significant impacts to the biological and physical environment.
- 3) For both agencies, compliance with Executive Orders 13007 and 12898.
- 4) For both agencies, results of the consultation with tribal governments, traditional practitioners, State Historic Preservation Officer, and the Advisory Council on Historic Preservation.
- 5) For the Forest Service, minimizing visual impacts associated with the transmission line.
- 6) For the Forest Service, avoidance of the Mt. Hoffman, Lava and Dobie Flat Roadless Released areas.
- 7) For the Forest Service, minimizing impacts to the Medicine Lake Caldera area.
- 8) The Plan of Operation is consistent with the Modoc and Klamath National Forests Land and Resource Management Plans.

All practicable means to avoid or minimize environmental harm have been included in the selected alternative as is required per 40 CFR 1505.2(c).

## Factor 1: Consistency with Existing Leasing Stipulations

In 1996, Calpine Corporation purchased federal leases CA21924 and CA21926 from Freeport-McMoRan Resource Partners, which was competitively awarded the leases in 1988. Issuance of the federal leases provides the leaseholder the right to explore, develop and utilize the geothermal resource located within the boundaries of the lease. Subsequent to issuance, the leaseholder(s) have complied with all terms and conditions set forth in those leases. Therefore, BLM is obligated to consider any proposal to develop the geothermal resources, as provided in the federal leases.

A specific question has been raised in terms of the Project's compliance with lease stipulations relating to visual impacts. In terms of visual impacts, the stipulation is as follows:

*No surface activities will be allowed on the following described lands unless lessee can demonstrate to the satisfaction of the Forest Service and the Bureau of Land Management through an appropriate Plan of Operation or permit application that unacceptable environmental impacts will not occur with exceptional visual qualities.*

*Sec. 21, S1/2, S1/2*

*Sec. 22, S1/2NE1/4, SE1/4NW1/4, S1/2*

*Sec. 28, N1/2, NW1/4SW1/4*

*Sec. 29, NE1/4, S1/2*

As stated in the 1984 leasing environmental assessment entitled, *Supplemented Environmental Assessment, Geothermal Leasing Forest System Lands in the Glass Mountain Known Geothermal Resource Area*, the above lease stipulation applies to the foreground zones of the identified travel routes. In regards to the federal leases CA21924 and CA21926, the identified travel routes are Fourmile Hill Road (Forest Service Road 44N54) and Medicine Lake Road (Forest Service Road 49).

The Project proposes drilling three well pads within the described area. The FEIS/FEIR states that the Proposed Action would be consistent with the Visual Quality Objectives for the area.

## Factor 2: Minimizing the Physical and Biological Environmental Impacts

As documented in the FEIS/FEIR, implementation of Alternative 6, as amended, with the mitigation measures identified in the FEIS/FEIR and included in this Record of Decision will not result in long-term significant impacts to the biological and physical environment. There may be short-term impacts to air quality as a result of the transmission line construction; however, this impact would only occur directly adjacent to the transmission line. There may be potential impacts with bird collision in the Highway 139 area; however, the Biological Opinion from the United States Fish and Wildlife Service (FWS) identified this potential as having a low probability of occurring. Mitigation measures have been identified that will further reduce the likelihood of a collision.

One type of critical habitat within the Medicine Lake Highlands is the Managed Late Successional Area (MLSA), which is identified habitat for the northern spotted owl. The necessity to provide for spotted owl habitat was established in the *Northwest Forest Plan*. Activities that would remove

suitable forage or nesting habitat within the MLSA could result in an adverse impact. Alternative 6 as amended avoids the MLSA.

The FEIS/FEIR requires monitoring of the impacts on wildlife associated with construction activities. If the monitoring reports indicate that the impacts exceed the thresholds established in the FEIS/FEIR, Calpine will be required to modify its operations.

### Factor 3: Consistency with Executive Order 13007 and 12898

In addition to potentially significant impacts to American Indian use of the Medicine Lake Highlands, the FEIS/FEIR states that implementation of the Project would have a significant impact to American Indians as a minority population. Therefore, prior to approval of the Project, the involved federal agencies must be in compliance with Executive Orders 13007 and 12898.

E.O. 13007, entitled Indian Sacred Sites, requires that each federal agency "*...shall, to the extent practicable, permitted by law, and not clearly inconsistent with essential agency functions, (1) accommodate access to and ceremonial use of Indian sacred sites by Indian religious practitioners and (2) avoid adversely affecting the physical integrity of such sacred sites.*" A thorough analysis of the effect of the Project on American Indians sites was conducted, which included an inventory of sacred sites within the Medicine Lake Highlands area. A review of the site locations revealed that implementation of the project will not restrict physical access or cause physical destruction to the specific locations. However, the FEIS/FEIR discloses that implementation of the Project could cause adverse impacts as a result of the noise and visual intrusion and an individual's awareness of the project.

Though E.O. 13007 states that federal agencies should avoid adversely impacting sacred sites, the E.O. further states that "*...Nothing in this order shall be construed to require a taking of vested property interests. Nor shall this order be construed to impair enforceable rights to use of Federal lands that have been granted to third parties through final agency action.*" As stated in Factor 1, Calpine Corporation has been issued federal leases for the right to develop the geothermal resource on federal lands. Thus, to the "extent practicable" the adverse effects to sacred sites have been avoided, notwithstanding denying the leaseholder its right to use federal lands.

E.O. 12898 requires that Federal agencies identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of projects (activities) on minority and low-income populations, including American Indians. The Executive Order further provides guidance for National Environmental Policy Act (NEPA) related activities by requiring federal agencies to disclose effects of, identify mitigation measures, and provide for public input on these impacts.

The FEIS/FEIR discloses that there could be significant impacts to minority populations, i.e. American Indian uses, if the Project were implemented. The FEIS/FEIR provides for mitigation measures to reduce the impacts that were identified in the Draft EIS/EIR for the project. The Draft document, as well as the FEIS/FEIR, provided the public the opportunity to comment on the impact(s) to American Indians.

### Factor 4: Consultation

The FEIS/FEIR concludes that implementation of the Project could result in a significant impact to American Indian cultural and religious uses of Medicine Lake Highlands. Therefore, it was imperative that a thorough and comprehensive government-to-government consultation process be completed. The primary purpose of the consultation was 1) to obtain an accurate understanding of the impacts, 2) determine what appropriate and reasonable mitigation measures should be included in the Project, and 3) to ensure that the federal Government has complied with the various Acts that require government-to-government consultation.

Tribal consultations involved the Pit River Tribe, the Klamath Tribes, the Shasta Tribe Inc., and the Confederated Bands of the Shasta and Upper Klamath River Indians. This process occurred over a five-year period and involved more than 30 meetings (see Section VII for a listing of consultation meetings).

As required by National Historic Preservation Act, the BLM and Forest Service conducted numerous meetings with the State Historic Preservation Officer (SHPO) and the Advisory Council on Historic Preservation (ACHP) to determine if an agreement between the agencies could be obtained regarding minimizing the impacts of the Project on American Indian values. The result of these meetings is a Memorandum of Agreement (MOA) regarding the Fourmile Hill project. The MOA describes how the Project will be implemented and monitored to ensure impacts are minimized. The MOA also provides for the establishment of a Cultural Management Plan for the Medicine Lake Highlands area.

#### Factor 5: Minimizing Visual Impacts from the Transmission Line

The FEIS/FEIR displayed the visual impacts from the transmission line from known observation points (KOPs). These are locations or areas that provide the visitor or resident of the area views of the existing setting. Except for the area located between Medicine Lake Highlands and Timber Mountain/Highway 139 area, there are currently no overhead transmission lines visible from the KOPs. It is our objective to minimize visibility of the transmission line from these KOPs. In regards to those views from KOPs that currently have views of transmission lines, it is our objective to confine location of the new transmission line to existing locations.

Whereas the transmission lines in Alternative 6, as amended, would be seen from four of the KOP sites with most being from those that currently view existing transmission lines, the Proposed Action would be visible from 15 of the 21 KOP sites. The community of Tionesta expressed concerns regarding the visual impacts associated with the transmission line. There would be no visual impacts to Tionesta from Alternative 6.

The FEIS/FEIR states that implementation of the Fourmile Hill Project may significantly impact the use of Medicine Lake Highlands by American Indian tribal members. The primary conflict is the intrusion of an industrial operation, i.e. geothermal power plant, in an area that tribal members consider sacred for both religious and cultural purposes. The approved transmission line route would be visible from certain localities that are used by tribal members. Alternative 6 as amended is less intrusive than the Proposed Action, and locates the transmission line outside the Medicine

Lake Caldera. In addition, the transmission tower height is generally below the surrounding tree heights and would not be visible from most culturally sensitive areas or sites.

#### Factor 6: Avoidance of the Mt. Hoffman, Lava, and Dobie Flat Released Roadless Areas

Alternative 6 as amended avoids entry into the Mt. Hoffman, Lava, and Dobie Flat Released Roadless Areas. Though entry into the areas may be consistent with the language contained in the current Forest Service Interim Released Roadless Area Policy, the intent of the policy is to avoid the construction of additional roads within these areas. Therefore, selection of Alternative 6 as amended is consistent with the intent of the Forest Service policy and does not result in additional environmental impacts.

#### Factor 7: Avoidance of Industrial Related Activities Within the Medicine Lake Caldera

The area within the Medicine Lake Caldera is a unique and distinctive setting. The area was formed as a result of the collapse of the volcano. Visitors to the area are provided the opportunity to view and experience the numerous physical, biological, social and cultural attributes of the area, such as visiting geological features and fishing, swimming, and boating at Medicine Lake. Individuals can also take advantage of the majestic views of the surrounding forested landscape.

Currently there are no overhead transmission lines within the Caldera. As documented in the FEIS/FEIR, permitting industrial activities such as a transmission line would result in significant impacts to the area within the Caldera. Alternative 6 as amended, avoids the placement of the transmission line within the Caldera.

#### Factor 8: Consistency with Forest Plans

The Klamath and Modoc National Forest Land and Resource Management Plans acknowledged the potential for geothermal development within the Medicine Lake Highlands. In addition, any power generation within the Medicine Lake Highlands would require the construction of a transmission line from the power plant to an existing compatible transmission line. The transmission line location, as described in the amended Alternative 6, is consistent with all resource standards and guidelines provided in the Forest Plans.

#### Summary of the Rationale

Both individually and cumulatively, these factors indicate the Selected Alternative will not result in unacceptable long-term significant impacts. Therefore, our decision is to approve Calpine Corporation's Plan of Operation and Special Use Permit.

## **V. PUBLIC INVOLVEMENT**

As part of the initial phase of the environmental analysis for the FEIS/FEIR, a Notice of Intent was published in the Federal Register on June 6, 1996. In addition, a notification letter was distributed

to over 750 agencies, American Indian groups and members of the general public. Press releases were also distributed to local newspapers regarding the proposal and the scoping process. Public scoping meetings were held at four different locations between June and August 1996. Approximately 60 comment letters were received during the public scoping period.

More than 375 copies of the Draft EIS/EIR were distributed in July 1997 to interested parties who had requested copies of the document or were known to be interested in geothermal development in the Medicine Lake Highlands. The document was available for a 74 day public review period until September 30, 1997. Four public meetings were held to receive comments on the Draft EIS/EIR in August 1997. A total of 270 letters were received. Numerous meetings with regulatory agencies were held to discuss the comments.

Approximately 450 copies of the FEIS/FEIR were distributed to interested parties and agencies. A 30-day notification of the availability of the FEIS/FEIR began October 2, 1998 and ended November 2, 1998. Notices of the availability of the FEIS/FEIR were distributed to local newspapers and federal offices.

## **VI. PUBLIC/AGENCY ISSUES**

As a result of the public participation process, individuals, organizations, and federal and State regulatory agencies identified numerous issues and concerns. A summary of these major environmental issues is presented below.

### Air Quality

The Siskiyou County Air Pollution Control District (SCAPCD) is responsible for enforcing federal and State of California air standards for fixed source, combustion and dust emission resulting from the Project. The SCAPCD will issue permits related to the control of air emissions during construction and operations. By law, the proponent cannot exceed any federal or California air quality standard outside the project boundary.

The main issues associated with air quality were PM(10) emissions from cooling towers, and Hydrogen sulfide emission during well venting and operations.

The FEIS/FEIR stated emissions from the site are expected to be within applicable standards, except for those for PM (10) which will occur during the plant construction phase of the Project. As stated in the FEIS/FEIR, the air modeling used a series of conservative assumptions that overestimated the impacts, thus we believe that the actual impacts on air quality will be less than projected. However, in order to ensure that short-term significant air quality problems do not occur during construction, the emissions will be carefully monitored and if they exceed the thresholds established in the FEIS/FEIR, Calpine will be required to initiate additional measures to reduce the impacts. These measures will include reduced activities, more extensive fugitive dust control measures, or redesign of the Project. The appropriate existing sensitive receptor stations will be used to monitor the impacts.

The estimated cooling tower emissions and the amount of hydrogen sulfide gas emissions are based on the current knowledge of the geothermal reservoir. If during development the reservoir chemistry is determined to be different than anticipated, Calpine will be required to submit the results of additional modeling of the revised predicted air emissions. If the emissions exceed the standards established in the FEIS/FEIR, Calpine will be required to do additional emission abatement or redesign their plant to ensure their operations are within the federal, State, and County standards.

Another concern was that the Project might exceed 250 lbs/day NO<sub>x</sub> emissions for the diesel generators at the power plant. A review of the anticipated emissions concluded that NO<sub>x</sub> threshold for emissions would not be exceeded. This is documented in a letter dated May 11, 2000 to the California Air Resources Board from the Siskiyou County Air Pollution Control Officer.

### American Indian Values

As previously discussed, implementation of the activities may result in a significant impact to American Indians. The impact is associated with the intrusion of the Project into an area that is used for religious and traditional cultural practices. The impact is not associated with denying access or the physical destruction to any discreet location or site, but rather the conflict with having unnatural improvements within a natural setting. This conflict is primarily associated with well field development and the power plant. However, there were concerns expressed regarding the visual impacts of the transmission line.

The federal government, BLM and Forest Service, conducted extensive consultation in order to determine: 1) scope and degree of the impact, and 2) if there are reasonable mitigation measures that would minimize the significant impact. A more detailed list of consultation meetings is described in Section VII of this Record of Decision.

In order to ensure that the significant impacts to American Indian use of the Medicine Lake Highlands are minimized, the mitigation measures identified in the FEIS/FEIR will be implemented:

1. During implementation of the project, the Forest Service and BLM will continue to consult with tribal members to identify any additional mitigation that would minimize the significant impact on American Indian uses of the area.
2. The FEIS/FEIR stated that mitigation measures “should be considered”. This Record of Decision will **require** implementation of those mitigations identified in the FEIS/FEIR that will reduce the visual and noise impacts associated with the exact location of the transmission lines, road construction and access and water line placement.

The Memorandum of Agreement (MOA) with SHPO, ACHP, BLM and Forest Service for the Fourmile Hill Geothermal Project contains specific provisions to minimize the effects on American Indian use in the Medicine Lake Highlands. The terms and conditions of the MOA are incorporated as part of this Record of Decision.

### Wildlife/Vegetation

The issue associated with wildlife is the removal of habitat and the direct effects to special status species. The FEIS/FEIR documented the analysis of effects on an extensive list of species and concluded that there would be no significant long-term impact to the identified special status species. As stated in the FEIS/FEIR, additional wildlife habitat surveys will be conducted in order to minimize the impacts to special status species as a result of the vegetation removal. In addition, the FEIS/FEIR contains mitigation measures that require Calpine to compensate, i.e., provide funding for enhancement of other timber stands for certain loss of habitat.

The FEIS/FEIR requires that inventories for survey and manage species, as identified in the Northwest Forest Plan, be completed prior to ground disturbing activities. These surveys were completed in accordance with established protocol during November 1998. The results of the inventories concluded that within the Project area there is no suitable habitat for any of the specific Category 2 survey and manage species. If additional protocols or procedures are established as a result of the issuance of the BLM and Forest Service Final Supplemental Environmental Impact Statement *For Amendment to Survey and Manage Protection Buffer, and other Measures Standards and Guidelines*, those will be required of the operator.

### Water Quantity

Impacts to groundwater as a result of pumping from the existing Arnica Sink well was expressed as a concern from numerous individuals and agencies. The water well will be used for drilling and is expected to be used only during the first year of development. The FEIS/FEIR states that the estimated amount of water withdrawn will be less than .1% of the annual recharge to the groundwater basin within the Arnica Sink area. Historical use of the Arnica Sink well, which was originally constructed to be used in association with geothermal exploration, has not resulted in reported impacts to other wells in the Medicine Lake area.

To validate the conclusion that there will be no impact to both groundwater and surface water, a water monitoring plan has been developed. The Plan, entitled *Medicine Lake Basin Comprehensive Hydrology Monitoring Plan*, will require, among other items, the monitoring of water levels in identified existing shallow groundwater wells. If the monitoring results indicate that there is excess draw down because of the use of the water, an alternative source may be required.

### Water Quality

The water quality issues are centered around the impacts to groundwater and surface water in Medicine Lake Highlands. In regards to the groundwater issue, the primary concern is the potential impact to water quality and quantity in the surrounding basins, with Medicine Lake Highlands being a groundwater source area for a portion of those waters. The United States Geological Survey, State regulatory agencies, and private consultants have reviewed the resource data provided by Calpine. Their conclusions, as documented in the FEIS/FEIR, are that there will not be a significant impact to the groundwater in the project location; thus, it is highly unlikely that the project could significantly impact adjacent watersheds, especially considering the volume of groundwater that is stored in the Medicine Lake Highlands.

The issue associated with surface waters is the potential impacts to the water quality primarily as a result of air emission from the cooling towers. The FEIS/FEIR and associated appendixes and reference documents contain information regarding the computer modeling that was done to estimate the effects of cooling tower emissions on surface waters within the Medicine Lake Highlands area. The modeling used conservative assumptions that essentially disclosed the worst-case scenario regarding water quality impacts. The FEIS/FEIR states that even in this worst-case scenario, water quality at Medicine Lake will exceed current federal and State drinking water standards. As with the air quality impacts, the modeling was based on known information regarding the geothermal reservoir chemistry. If, during development of the reservoir, testing indicates conditions are different than identified in the FEIS/FEIR, Calpine will be required to modify the Project to assure that both State and federal standards for drinking water are exceeded.

In order to validate these conclusions, a comprehensive water monitoring plan has been developed and reviewed by the respective California Regional Water Quality Board staffs, BLM and Forest Service geologists, and consultants. The Plan, entitled *Medicine Lake Basin Comprehensive Hydrology Monitoring Plan*, dated February 1999, requires monitoring of groundwater, surface water and water quality in the Medicine Lake Basin area, as well as at the Fourmile Hill reinjection field.

## Visuals

In regards to visual impacts, the primary issue is the potential visual intrusion of an industrial complex in a forested area. The FEIS/FEIR documented the visual analysis for various components of the Project, which included additional traffic associated with construction, well venting, cooling tower plumes, and power plant lighting that are to occur on the federal leases. The analysis concluded that short-term adverse impacts may occur during construction, but the Project as amended in Alternative 6 with additional mitigation measures will not result in significant or long-term adverse visual effects. In addition, the proposed activities on the federal leases will be consistent with the established Visual Quality Objectives for the area.

Another concern is the visual impacts as a result of the location of the transmission line from the Medicine Lake area, Lava Beds National Monument and the community of Tionesta. The primary issue is introduction of a facility that does not exist in the current setting. The FEIS/FEIR provided visual simulations from various Key Observation Points (KOPs) along

the transmission routes. In regards to Alternative 6 as amended, the significant visual impacts to the Medicine Lake area and the community of Tionesta are avoided. The FEIS/FEIR contains a photo simulation from a KOP in Lava Beds National Monument, and documents that the transmission line would not be visible due to the distance from the viewing area.

The FEIS/FEIR contains mitigation measures that will reduce the overall visual impacts of the transmission line. Since the exact location of the transmission line within the study corridor will be determined during site design, Calpine will be required to do a visual simulation of the final location of the route prior to construction. If the location results in visual impacts that exceed the threshold established in the FEIS/FEIR, Calpine will be required to modify their proposed location or redesign the transmission line.

### Noise

The primary issue associated with noise impacts is that of the forest visitor being subjected to readily discernible construction and operation noises associated with the Project. The FEIS/FEIR states that a hiker in the proximity of the Project area or a forest visitor traveling along Forest Road 49 would be subject to a noise impact that exceeds the respective county standards, but is below the thresholds established by BLM for geothermal operations on federal leases. This noise impact would be for a short duration and would not significantly impact the forest visitor. Of greater concern would be noise impacts to the Medicine Lake recreation user or private residences located at the lake. The FEIS/FEIR concludes that construction and operation noise associated the well field and power plant activities would not exceed either federal or State standards for noise impacts. There will be short term noise impacts associated with the tower and conductor placement. However, this impact will not significantly impact the forest visitor.

In order to ensure that visitors and residents of Medicine Lake area are not subject to noise intrusions that exceed federal or County standards, Calpine will be required to monitor Project construction and operations noise levels. The purpose of the monitoring plan will be to ensure that the predicted noise thresholds are not exceeded during construction and operations. If monitoring results indicate that construction and operation noise is exceeding thresholds, Calpine will be required to modify its Plan of Operation.

### Transportation

The critical concerns with transportation are 1) increased traffic, 2) impacts to Forest Service maintained roads, 3) conflicts during winter, and 4) summer access during construction and operation of the project. The FEIS/FEIR contains mitigation measures that require Calpine to be financially responsible for specific road maintenance, avoid use of certain roads and to minimize vehicular impacts by car-pooling.

### Threatened and Endangered Species

The FEIS/FEIR and the Project Biological Assessment evaluated the effects of the Project on Shasta crayfish, northern spotted owl and bald eagle species that are managed under the

Federal Endangered Species Act. The analysis concluded that implementation of the Project, with the appropriate mitigation measures, will result in no effect on the Shasta crayfish and northern spotted owl critical habitat and is not likely to adversely affect the northern spotted owl and bald eagle at Medicine Lake.

In their Biological Opinion, the FWS determined that there exists the potential for bald eagle collision with the transmission line in the area of Highway 139. For that reason, they have issued a Take of a Federal Species to the Forest Service. The conditions for the granting of Take are specifically described in their Biological Opinion for the project. These conditions are incorporated into this Record of Decision.

To further ensure that there are minimal impacts to threatened and endangered species the following actions will be required:

- Netting or equivalent item placed over sumps on each well pad when geothermal fluids are present.
- Baseline mercury survey at Medicine Lake and subsequent monitoring of mercury levels in fish at Medicine Lake. The monitoring will be done in accordance with current EPA standards.
- Monitoring of pH levels at Medicine Lake.
- Establishment of a meteorological station at the power plant to monitor prevailing wind direction.

### Cultural Resources

The primary issue was the completion of consultation process with the State Office of Historic Preservation. Subsequent to the issuance of the FEIS/FEIR, the Forest Service and BLM have completed the Section 106 consultation process of the National Historic Preservation Act. Additional field inventories will occur along the approved (selected) transmission line route and, if sites are found, appropriate mitigation measures will be implemented. The exact procedures are defined in the Memorandum of Agreement (MOA) for the Project. The FEIS/FEIR provides a comparative analysis on the effects of cultural resources for each alternative transmission line route.

### Lease Extension

The federal leases associated with Fourmile Hill Project were issued effective June 1, 1988 for a primary term of ten years. During the period between January 1994 and January 1998, the lessees conducted exploration activities, submitted a Plan of Operation for a commercial 49.9 megawatt facility, and initiated environmental engineering studies in support of the FEIS/EIR.

By a letter dated March 9, 1998 to BLM, Calpine requested a five year extension of the primary term under the then existing regulation at 43 Code of Federal Regulations (CFR) 3203.1-4(c). This regulation provides that the geothermal leases may be extended for two successive 5 year periods as long as the lessee provides BLM with a report documenting bonafide efforts by the lessees to produce or utilize geothermal resources in commercial

quantities of production and agrees to either make payments in lieu of commercial production or make significant expenditures during the period of extension. Based upon the documentation included within Calpine's request, the BLM determined that Calpine had made bonafide efforts to produce or utilize geothermal resources in commercial quantities and agreed to make payments in lieu of commercial quantities of production.

Since Calpine met the requirements of 43 CFR 3203. 1-4(c), BLM granted the five-year extension of the subject leases by a decision on May 8, 1998. The regulation states that if the operator meets the requirements for the extension, the operator may obtain the extension. While BLM may terminate the extended lease for failure to pay the annual rental (43 CFR 3205. 3-2), the agency does not have the similar regulatory authority to deny the extension if the operator has met the requirements of 43 CFR 3203. 1-4(c).

The extension only provides for a time period and did not grant any additional lease rights beyond the rights previously granted on June 1, 1988 when the leases were issued. Since the granting of the extension of time is considered an administrative action, no environmental reviews were required to be conducted. While the issuance of a new lease must be based upon reasonable environmental analysis and any ground disturbing activities require similar review, once the lease has been issued, it is the position of BLM that solely the addition of time to the lease, in and of itself, does not require an environmental review.

#### Induced Seismic Activity

The production and reinjection of geothermal fluids may result in microseismicity events in the project area. The seismic events are associated with rock "movement" as the fluids are either removed from the reservoir or re-injected into the reservoir. The microseismic activity (magnitude 3 or less) will occur at depths that will not adversely impact the surface environment.

BLM Geothermal Resource Orders (GRO) Number 4 provides for environmental protection during geothermal development. Specifically, GRO Number 4 states that the BLM may require the geothermal operator to install seismographs to accurately quantify the actual induced microseismic activity as a result of the geothermal production. If induced seismicity is determined to represent a significant hazard, BLM may require remedial actions including, but not limited to, reduced production rates, increased injection of fluids, or suspension of production. This modification of well field production or injection will minimize any adverse effects due to induced seismic activity associated with the geothermal development in the Project area.

#### Surface Subsidence

The primary issue is subsidence of the existing ground surface as a result of the withdrawal of the geothermal fluids. GRO Number 4 states that the operator shall conduct land surface surveys prior to and during geothermal production. In the event subsidence activity results from the production of geothermal resources, the BLM may require the operator to reduce production rates, increase injection rates or suspend production. This modification of well

field production or injection will minimize any effects due to subsidence as a result of geothermal development at Fourmile Hill.

### Seismic Hazard

There was a concern stated regarding the potential damage to the facilities as a result of seismic hazard related to earthquake activity from faults within the Fourmile Hill project area that were not identified in the FEIS/FEIR. Calpine will be required to submit for Agency approval specific designs for the all surface facilities associated with the Project. The review and final approval of the facility design must satisfy the necessary requirements for seismic hazard safety. The specific design will be based upon the most current information available regarding the seismic hazard potential in the project area.

In addition, GRO No. 2 requires that all well casing be designed for safety factors given the anticipated geology and reservoir conditions. All geothermal drilling permits submitted for the Fourmile Hill project will be reviewed by the BLM to determine that the subsurface casing design and materials will withstand a minimum of 150% the anticipated conditions for tension, collapse and burst pressures. This would include potential casing rupture as a result of seismic activity. In addition, BLM will require periodic mechanical integrity testing of each well to determine the condition of the casing and the need, if any, for repairs to minimize the potential for casing rupture as a result of seismic activity.

### Recreation

The Medicine Lake area contains Forest Service developed recreation facilities, which are primarily used in the summer for fishing, hunting, and camping in the proximity of Medicine Lake. During the winter months, the primary recreation activity is snowmobile use. The main concern to both the summer and winter recreation is the potential to reduce the recreation experience at Medicine Lake. As stated in the FEIS/FEIR, implementation of the project will not result in significant impact to the visitor of Medicine Lake area. There may be some short-term adverse effects associated with additional traffic, noise and air quality (see previous discussion on these issues) but it should not result in the visitor leaving the area. The FEIS/FEIR states that one of the snowmobile routes will be impacted due to the need for winter access to the Project; however, the mitigation measures will minimize this impact.

### Cumulative Effects

There were numerous comments regarding the need to analyze the effects of additional geothermal power plants within the Medicine Lake area. This concern was based upon existing geothermal leases within the Glass Mountain KGRA, a second proposal for a geothermal power plant (Telephone Flat), and the size and capacity of the transmission line. The FEIS/FEIR included all reasonable and foreseeable actions in the cumulative effects analysis. The primary foreseeable action was the proposed Telephone Flat geothermal project. The analysis of additional development was considered speculative and was not included in the cumulative effects analysis. The issuance of geothermal leases does not

indicate that the leaseholders would wish to exercise their lease rights to develop the geothermal resource in the reasonable foreseeable future. Development of the lease is based upon there being a market/buyer to purchase the power. Current market conditions indicate that there is a limited opportunity to sell geothermal power. In addition, the FEIS/FEIR states that development of the Project leases is based on limited knowledge of the size and capacity of the reservoir; thus, assuming there is a sufficient resource to develop additional leases would be premature.

This Record of Decision imposes a five year moratorium on additional geothermal development within the Glass Mountain KGRA. This action will provide sufficient time to monitor the effects of the Fourmile Hill Project prior to considering any project expansion or additional development.

The FEIS/FEIR discusses the rationale of the size and capacity of the transmission line. Essentially, the transmission line capacity is based on reliability, environmental considerations and cost. Future geothermal development was not considered in the capacity of the transmission line. The rationale for use of the 230-kV size versus a 115-kV transmission line smaller is described in the **Alternatives not Considered In Detail** Section of this ROD.

## VII. GOVERNMENT TO GOVERNMENT CONSULTATION

The Forest Service and BLM conducted an extensive tribal consultation process for the Project. The affected tribes were notified of the project by the USFS and BLM after receipt the Plan of Utilization for the projects. Over 30 meetings were held with the tribes. These meetings were for the purpose of requesting protocol for the consultation process, tribal issues and concerns with the geothermal projects, presentation of the content of the draft and final environmental documentation prior to public issuance of those documents, review and comments on the environmental documents as well as the ethnographic report, and finally meetings between the respective federal decision makers and tribal government officials regarding the tribal concerns with the projects. Following is a list of the face to face meetings:

<b>Date</b>	<b>Tribe(s)</b>	<b>Purpose of Meeting</b>
October 27, 1995	Klamath Tribes and Shasta Tribe	To review the proposed Plan of Utilization
December 7, 1995	Klamath Tribes and Shasta Tribe	To discuss the NEPA and consultation process for the geothermal project(s)
April 15, 1996	Pit River Tribe	To discuss issues with geothermal project
April 19, 1996	Pit River Tribe	To meet with tribe representatives and introduce project proponent
June 13, 1996	Klamath Tribes	Meeting with Heritage and Cultural Committee to discuss issues and concerns with project.
July 10, 1996	Klamath Tribes	Follow-up to June 13 meeting
July 12, 1996	Pit River Tribe	Meeting with tribal members to discuss issues with the projects

September 21, 1996	Pit River Tribe	Conducted site visited with tribal members
June 5, 1997	Klamath Tribes	Meeting with tribal members to discuss ethnographic report
June 17, 1997	Klamath Tribes	To discuss environmental justice issues
June 20, 1997	Pit River Tribe	Discussed with tribal governmental representatives the ethnographic report, environmental justice issues, and the environmental documentation
July 2, 1997	Pit River Tribe	Meeting with Tribal Council to discuss the geothermal project
August 6, 1997	Klamath Tribes	Meeting with Cultural and Heritage Committee to discuss adequacy of the Fourmile Hill DEIS
September 9, 1997	Klamath Tribes	Meeting with members of the Executive Committee and federal decision makers regarding issues with the project.
September 20, 1997	Pit River Tribe	Site visit tour with tribal members
October 3, 1997	Pit River Tribe	Consultation protocol for future consultation on the geothermal projects
March 17, 1998	Pit River Tribe	A meeting to review environmental document prior to public release.
April 1, 1998	Klamath Tribes	Meeting with Executive Committee to discuss the ethnographic report, the DEIS and consultation.
April 10, 1998	Pit River Tribe	Similar to the April 1, 1998 meeting with the Klamath Tribes.
May 12, 1998	Klamath Tribes	Confidentiality of sacred sites identified in the ethnographic report.
September 16, 1998	Klamath Tribes	Meeting between Executive Council and federal decision makers
October 6, 1998	Klamath Tribes	A field visit with representatives of the Cultural and Heritage Committee and federal agencies
March 5, 1999	Pit River Tribe	A meeting with federal decision makers and tribal government representatives to discuss issues with the geothermal project.
March 9, 1999	Klamath Tribes	A meeting with federal decision makers and the Executive Committee to discuss issues with the Project
March 13, 1999	Shasta Nation	A meeting between elected tribal government official and federal decision makers

May 21, 1999	Pit River Tribe	Federal decision makers from BLM, FS, and BPA meeting with Tribal Council to discuss concerns with Project
July 15, 1999	Klamath Tribes	Field review of proposed geothermal projects with new members of the Executive Committee
February 10, 2000	Pit River Tribe	BLM and Forest Service Decision Makers and Tribal Council and members met to discuss pending decision on the geothermal projects
February 11, 2000	Shasta Tribe Incorporated	BLM and Forest Service Decision Makers and Tribal Council and members met to discuss pending decision on the geothermal projects
February 12, 2000	Shasta Nation	BLM and Forest Service Decision Makers and Tribal Council and members met to discuss pending decision on the geothermal projects
February 18, 2000	Klamath Tribes	BLM and Forest Service Decision Makers and Tribal Council and members met to discuss pending decision on the geothermal projects

In addition, the record includes extensive correspondence between tribal governments and the respective federal agencies. In order to ensure that the impacts to American Indian use of the area are minimized, we will continue to consult with the various Tribes regarding all aspects of implementation of the Project.

## **VIII. GOVERNMENT CONSULTATION**

### U.S. Fish and Wildlife Service

The FWS has reviewed the Project Biological Assessment and concurred with the determinations and mitigation measures. Mitigation measures are:

- Separation distance between energized conductors and ground wires will be at least 18 feet and therefore will eliminate the risk of electrocution.
- The ground wires above the transmission line within the Klamath National Forest and the western section of the Modoc National Forest (segments A3 and B1) will not substantially exceed the height of tree canopy. Within this area, the forest canopy is tall enough in most locations to overtop the proposed transmission line.
- In accordance with the Pacific Bald Eagle Recovery Plan, the proposed transmission line will be constructed at least one mile from communal roosts.
- The Forest Service and Calpine Corporation will implement a deer-carcass removal program along Highway 139. To decrease the potential for foraging bald eagles to collide with transmission lines, the Forest Service and Calpine

Corporation will develop a program with Caltrans staff of the Newell maintenance station to remove deer carcasses from under all existing and proposed transmission lines that cross Highway 139 within two miles of the Perez Overpass. All carcasses will be moved so that they are at least 100 feet from the road and 300 feet from the transmission line.

- The Forest Service and Calpine Corporation will install bird diverters on the transmission line segment C2 to reduce the potential for collision with the line. Diverters will be placed at 50 foot intervals along the shield wire above the conductors. In spans with two shield wires, diverters will be installed on both wires in a staggered fashion at 100-foot intervals so they appear on approach to be spaced at 50-foot intervals. On the span of the transmission line that crosses Highway 139, spacing of diverters will be reduced to 25 foot intervals over and within 100 feet of the highway. Modoc National Forest will determine specific design and color of the bird flight diverters.
- From October 1 through April 1, transmission line segments C2 will be patrolled monthly to check for injured or dead birds or indirect evidence that one was present (e.g. feathers, feet, or other body parts on the ground or on the transmission line). Any injured or dead bald eagle or evidence of their injury or death will be reported immediately to the Service's Klamath Falls office and documented in writing to that office within one week of the observation.

#### State Office of Historic Preservation and Advisory Council on Historic Preservation

The SHPO and ACHP have concurred with the determination that implementation of the Project will result in an adverse effect to American Indian use of Medicine Lake Highlands. The SHPO and ACHP have also reviewed and agreed with a Memorandum of Agreement (MOA) for the Fourmile Hill Project. The actions items identified in the MOA are incorporated as part of this Record of Decision. Specifically, the MOA establishes 1) a Mitigation and Monitoring Plan for the Fourmile Hill Project and 2) the development of a Cultural Management Plan for the Medicine Lake Highlands that includes a portion of the Shasta-Trinity National Forests.

## **IX. MITIGATION AND MONITORING**

The approval of the Project, as amended in Alternative 6 of the FEIS/FEIR, has been made subject to those mitigation measures and monitoring requirements identified in Volume I of the FEIS/FEIR and including those contained in this Record of Decision. These requirements are incorporated into this Record of Decision as stipulations to this document. All mitigation measures, monitoring requirements and operating conditions, to which the Operator must adhere, shall be compiled in an Environmental Quality Assurance Plan. This plan will assist the Forest Service and other permitting agencies in monitoring the compliance of Calpine Corporation throughout the life of the Project.

As stated in **Section II** of this Record of Decision, there will be the establishment of a public oversight group to review all aspects of the Project monitoring program. This is also an action item in the MOA with SHPO and ACHP.

## **X. FINDINGS REQUIRED BY OTHER LAWS**

We find the Selected Alternative to be consistent with the relevant laws, regulations, and direction, including but not limited to: the Organic Act of 1897; the Clean Air Act as amended; the Clean Water Act; Protection of Wetlands Executive Order 11990; the Safe Drinking Water Act; the National Forest Management Act of 1976; the National Environmental Policy Act of 1969 as amended; and the Federal Land Policy Management Act. Consistency with the relevant laws is discussed in detail throughout Chapter 4 of Volume 1 and Chapter 3 of Volume 3 in the FEIS/FEIR.

## **XI. ADMINISTRATIVE APPEAL OPPORTUNITIES**

### **Bureau of Land Management**

Within 30 days of receipt of this decision, an adversely affected party has the right of appeal to the Interior Board of Land Appeals, Office of the Secretary, in accordance with the regulations at Title 43 Code of Federal Regulations 4.400. Follow the procedures as outlined in the enclosed Form 1842-1, Information on Taking Appeals to the Board of Land Appeals. Within 30 days after filing an appeal, a Statement of Reasons must be provided to the Board of Land Appeals, listed in Item 3 on the form. In addition, please provide the Alturas Field Office with a copy of the Statement of Reasons. The appellant has the burden of showing that the appealed decision is in error.

### **Forest Service**

The decision is subject to appeal pursuant to 36 CFR 215. It is essential that the written notice of appeal be filed with the Appeal Deciding Officer within 45 days from the publication of a legal notice in the Modoc County Record or the Siskiyou Daily News. File notices of appeal with: Regional Forester, USDA Forest Service, 1323 Club Drive, Vallejo, California, 94592. Notices of appeal must meet the specific content requirements of 36 CFR 215.14. Persons wishing to participate must meet the requirements of 36 CFR 215.11.

## **XII. IMPLEMENTATION DATE**

### **Forest Service**

This decision can be implemented 50 days after the official legal notification of this decision in the Modoc County Record, Alturas, CA and the Siskiyou Daily News, Yreka, CA.

### **Bureau of Land Management**

As provided under 43 CFR 3200.5(b), this decision is immediately in full force and effect upon approval by the Authorized BLM officer. The authorized BLM officer for this action is the BLM Alturas Field Manager

### **XIII. CONTACT PERSON**

For further information concerning this Project or decision, please contact:


Randall M. Sharp  
Project Coordinator  
% Modoc National Forest  
800 W. 12th Street  
Alturas, CA 96101  
(530) 233-8848

### **XIV. SIGNATURES AND DATE**

  
for Margaret J. Boland


Forest Supervisor  
Klamath National Forest  
U.S. Forest Service

Date 5/31/00

  
Daniel K. Chisholm

Forest Supervisor  
Modoc National Forest  
U.S. Forest Service

Date 5/31/00

  
Timothy J. Burke

Field Manager  
Alturas Field Office  
Bureau of Land Management

Date 5/31/00